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The Echinoderms Newsletter¹

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Prepared in the Department of Invertebrate Zoology (Echinoderms),
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With this issue we include the good news that the Third Echinoderms Conference is to be held in March, 1978. Those of you who are interested in participating are urged to complete and send to Frank Rowe the enclosed pre-registration form without delay.

Regional Editors, we eagerly await your contributions; please send us what you have, and we'll circulate it promptly.

I think that for the first time ever we have produced two Newsletters within the span of a year. This astounding feat would not have been possible at all without the monumental labors of Cynthia Gust who, becoming impatient with our well developed procrastination techniques, set to and typed virtually all of the Newsletter, duplicated it, addressed the envelopes, and did a million other things. We owe her a great vote of thanks.

David L. Pawson
Maureen E. Downey

¹The Echinoderms Newsletter is not intended to be part of the scientific literature, and should not be cited, abstracted, or reprinted as a published document.

HELP!! - ADDRESSES UNKNOWN

If you happen to know the addresses of any of the following people, please let us know. Thank you.

J. Campbell	Landenberger
Judith Eastwood	Paul Leviten
Finn Edvardsen	Karl Mauzey
Losza Endelman	R.G. McKellar
Carol Mosher Fernandez	B.F. McTherson
Olga Grageda	Richard Merrill
Spencer Hamada	A.T. Mu
J.R. Harger	P.B. Noble
Ira Jones	B.S. Vasu
Michael Kyte	Kathleen Woolley

REGIONAL EDITORS

At any time, we are ready to receive reports from the numerous Regional Editors that were listed in the last Newsletter. Please send us any information you have, and we'll include it in Newsletter No. 9. Thank you.

Additions to Regional Editors:

Sigmund Kardas - Spain and Canary Islands.
Jorge A. Petersen - Brazil (

"Recent Publications" list : We are thinking of making the "Recent Publications" list more useful by adding a brief abstract for each title (where appropriate). In order to provide this service we would have to depend upon you to provide us with reprints or, in the case of papers in press, a very brief summary of the paper. We think that the list of titles would be much more useful than it is now if abstracts were to be included.

James Hall Paleontological Society: Interested persons are invited to join the James Hall Paleontological Society of New York State, a non-profit organization being founded by collectors of New York State fossils to further science and to share experiences. Please contact F.H.C. Hotchkiss for further information.

Reviews of books and papers: Several correspondents have suggested that the Newsletter might include reviews of books and important papers, especially those published in obscure journals. We'll do it, provided reviews are not libelous.

Information on collections of echinoderms: E. Tortonese has suggested that we might collect information on systematic collections of echinoderms (size, availability, types, etc). Certainly, it would be good to know where all existing type-specimens of echinoderms are currently being held around the world. Along these lines, what kinds of information on collections would you like to have available? Please write to us with your suggestions, and we will try to get something started. At the very least, for example, it would be good to have a list of the published catalogues of type-specimens of echinoderms.

Theses and Dissertations

Addendum to the lists of Ph. D. Dissertations and Masters' Theses concerning echinoderms. Previous lists published in the Newsletter: no. 3 (April 1971); No. 4 (December 1972); No. 6 (April 1975); No. 7 (July 1976).

Ph.D. Dissertations:

Carney, R.S. 1976. The patterns of abundance and relative abundance of benthic holothurians (Echinodermata: Holothurioidea) on Cascadia Basin and Tufts Abyssal Plain in the Northeast Pacific Ocean. Oregon State Univ.

Ellington, W.R. 1976. Metabolic compensation of the sea cucumber Sclerodactyla briareus to reduced oxygen tensions. University of Rhode Island.

Gorzula, S. 1976. Biology of Ophiocomina nigra in the Clyde. (Univ. of London).

Himmelman, J.H. 1976. Factors regulating the reproductive cycles of some west coast invertebrates. (Deals, in part, with Strongylocentrotus purpuratus and S. droebachiensis). Univ. of British Columbia.

Tommasi, L.R. 1968. Echinoderms of the Ilha Grande region (State of Rio de Janeiro). University of S. Paulo.

Wagner, C.D. 1970. Evolution among some Clypeasteroid echinoids. Univ. of California, Berkeley.

Wilke, I. 1976. Autonomy and properties of connective tissue in Ophiocomina nigra. University of Glasgow.

Masters' Theses:

Ausich, W.I. 1976. The functional morphology and evolution of Risocrinus (Crinoidea: Silurian). Indiana University, Bloomington.

Gras, H. 1976. Physiological and pharmacological studies on the motility of isolated pigment cells in Centrostephanus. University of Cologne.

Lewis, R.L. 1974. Studies in the inadunate crinoid family Pirasocrinidae. The University of Iowa.

Moreno, E.F. 1976. Estudio descriptivo y de distribucion de los asteroides de la Islas Canarias. Universidad de La Laguna (Tenerife), Canary Islands, Spain.

Precious, M. 1976. Studies on the Biology of the sea urchin, Paracentrotus lividus (Lamarck) in Bantry Bay, Southwest Ireland. University College.

Wagner, C.D. 1963. Revision of the echinoid family Mellitidae. U. of Calif.

Suggestions and Requests

Boolebotian- presently preparing volume on echinoderms. Need excellent 35mm or larger and/or B&W photos of wide variety of echinoderms, global in nature - USA in specific.

Brito- Would like to exchange papers about Brazilian echinoderms (Recent and fossil) with papers covering the Caribbean Miocene echinoid fauna (Cuba, Puerto Rico, Panama, etc.) and West Africa Cretaceous echinoids.

Clark, A.M., M.E. Downey, and M.Sibuet- are preparing a monograph of the Atlantic Asteroidea. They would appreciate receiving any unpublished records of Atlantic asteroids.

Clark, J.F.- interested in echinoderms from southernmost islands of Pacific, particularly small or incidental collections not reported in literature.

Downey- would like to examine specimens of Peltaster, Sphaerodiscus, and Tosia from the Atlantic, and doubtful specimens of Asterias rubens, vulgaris, and forbesi.

Ellington- requests information regarding "local degeneration" in holothurians. Particularly interested in the distribution of this phenomenon within the group.

Hess- would like to exchange crinoids from Swiss Jurassic (Pentacrinites, extremely well preserved, with tegmen etc.) for specimen of Gilbertsocrinus tuberosus (Crawfordsville) with crown.

Hotchkiss- would appreciate references for bibliography of Paleozoic Asterozoa; Mesozoic and Tertiary echinoids from Antarctica-southern South America region; Paleozoic ophiuroids and somasteroids; abnormal starfish in preservative for dissection.

Kelly, P.- would appreciate information on feeding and reproductive behaviors of abyssal echinoderms; also information on nutrient cycling or energy flow within deep sea with implications from macro-invertebrates; also, parasites of echinoderms.

McConnaughey- pictures (both color and black and white) needed for possible inclusion in Introduction to Marine Biology (3rd edition).

Moraes- exchange of information on echinoderms of polluted areas.

Moreno, E.- reprints and works in general are needed related to the morphology, distribution and ecology of the echinoderms of the West Atlantic.

- Paul- information on food and feeding habits of Recent crinoids; feeding, assimilation and respiration rates in any living echinoderms; data on concentrations of crinoid food particles in present day sea water.
- Phelan- wet specimen of Heliophora orbiculus (Linnaeus) needed for study of lateral water vessel distribution.
- Precious- would appreciate any information on newly metamorphosed juvenile echinoids in natural populations, especially: densities, situation in relation to adults of same species, feeding habits and growth rates for comparison with data I have on Paracentrotus lividus.
- Sastry- would like to receive West Pacific representatives of Laganum and Peronella, for exchange of Indian representatives or as donation. (Clypeasteroidea- Laganidae).
- Sibuet- coordinates (geographic and depth) of Atlantic stations deeper than 200 meters where asteroids have been collected and not been published.
- Siegel- would appreciate any unpublished information or current reprints dealing with ecology and reproduction in holothurians; would welcome well preserved specimens of any synaptid or chiridotid holothurians, particularly Chiridota laevis. Will reimburse correspondents for all mailing costs.
- Seibertz- would welcome exchange of information and ideas in biometrical and statistical investigations on recent and fossil echinoids; also interested in information on migration of echinoids (notes and literature); seeks more or less well preserved fossil and recent echinoids (also exchange) for a systematic collection.
- Serafy and F.J. Fell- would like the locality and depth of any North Atlantic echinoids collected from outside their known bathymetric or geographic ranges for zoogeographic study.
- Strathmann- has anyone observed Strongylocentrotus droebachiensis and S. pallidus (equals S. echinoides) spawning in the same place at the same time? Has anyone observed spawning aggregations separating these species?
- Sutton- any information available on parasitism or commensalism of bivalves on ophiuroids.
- Thandar- would like to receive from colleagues a list of all papers on holothurian systematics published since 1970 and reprint articles if available.
- Tortonese- specimens of Echinaster wanted (Whatever species or locality: E. sepositus excepted).
- Wolfe- would like records or known current research with Gorgonocephalidae, especially Astrophyton and other Atlantic species.

Current Research Projects

- Abbott, D.P.- Studies of diet and behavior of west Indian echinoids.
- Arnaud- Pelecypods associated with antarctic and subantarctic echinoids; ecology and adaptations in benthic invertebrates of the Southern ocean.
- Ausich- Pisocrinus from Nevada and Gaspe; Allens Creek Bank, Analysis of Mississippian Filter-feeding Communities (Borden Group, Indiana); Growth of the Crinoid proxistele.
- Bakus- Benthic biota in the Gulf of Alaska and the Bering Sea.
- Beaver- Blastoids.
- Binyon- Mineral metabolism in asteroids.
- Boolootian- Echinoid Hemal: Physiology. A 16mm Motion Picture Study- 15 minute color. Available in March 1977.
- Breimer- Phylogeny of spiraculate blastoids; speciation in Pentremites, a Mississippian blastoid; revision of Coronate Blastoida.
- Brito- Cretaceous and Tertiary echinoids from Brazil.
- Broom- Behaviour of ophiuroids and crinoids.
- Brower- Evolution of the Melocrinitidae; evolution of Calceocrinidae; Calceocrinids from the Bromide Limestone (Middle Ordovician); Middle Ordovician crinoids from the Twin Cities in Minnesota.
- Brunel- Seasonal succession and daily activity rhythms of circalittoral hyperbenthic Crustacea in the Gulf and estuary of the St. Lawrence; distribution of the epibenthic invertebrate macrofauna of the Gulf and estuary of the St. Lawrence; distribution of endo- and hyperbenthic invertebrate communities in the Gulf and estuary of the St. Lawrence.
- Burke, R.B.- The development and functional morphology of the echinopluteus larva.
- Campbell- Analysis of basi-epithelial nervous system of echinoids with reference to spine and pedicellaria control; structure of deep-sea echinoid pedicellaria.
- Challis- Systematics and paleoecology of Tertiary echinoids, molluscs, and microfossils from the Maltese Islands.
- Cherbonnier- Holothurians of Madagascar.

Clark, J.F.- Rebuilding and outfitting a forty foot ketch for echinoderm collecting circumnavigation to commence spring of 1978.

Crippen- Marine benthic and intertidal studies in the Arctic and Maritimes; environmental impact studies in the above regions.

Dan, K.- Mechanism of unequal cleavage.

Dartnall- Biogeography of shallow water, marine benthos off eastern Tasmania.

Dayton- Benthic ecology in California and Antarctica.

Dehm- Devonian echinoids.

Downey- Atlantic asteroid monograph with A.M. Clark and M. Sibuet; juvenile asteroids and larval development and metamorphoses of asteroids.

Durham- Polymorphism in the Pliocene sand-dollar Merriamaster (Echinoidea); new Merriamaster and Dendraster from Purisima Formation, California (with Scott R. Morgan); Clypeaster biarritzensis Cotteau from Lower Oligocene of Iran (with Fathollah Mojab); a new Gogia from Early Cambrian of California.

Ellington- Purification and characterization of the L-lactate dehydrogenase (EC 1.1.1. 28) from the longitudinal muscle of Stichopus parvimensis.

Geary- Oogenesis in the Pacific sand-dollar Dendraster excentricus, with special reference to the morphogenesis of the red pigment cell in the egg jelly.

Hansen- Systematics and biology of deep-sea holothurians.

Harrold- Feeding strategies of five species of starfish in the kelp forest adjacent to Hopkins Marine Station in Pacific Grove, California.

Hawkins- Ecological energetics of Diadema antillarum on a fringing coral reef in Barbados, W.I.

Henderson- Cenozoic Australasian clypeasteroid echinoids of the family Arachnoididae; Late Cambrian echinoids from western Queensland, Australia.

Hess- Redescription of Pentaceros jurassicus Zittel (Lower Tithonian of Bavaria).

Hill- Cloacal rhythmicity, longitudinal retractor physiology and local degeneration in holothurians.

Hiramoto- Cell division and cell movement.

- Hotchkiss- Paleozoic ophiuroids and asteroids; Mesozoic and Tertiary echinoids of Antarctica and southern South America; homologies between echinoderm classes; orientation and symmetry of echinoderms; abnormalities, regeneration and growth gradients in starfish and ophiuroids; echinoderm larvae and phylogenetic trees; Belize ophiuroids; Indian Ocean starfish.
- Iwata- Reproductive physiology in echinoids.
- Jefferies- Detailed study of Peltocystid mitrates (Stylophora) in the hope that this will throw light on the origin of the tunicates, (with David Lewis).
- Kanatani- Mechanism of oocyte maturation and fertilization in starfish.
- Kelly, P.- Ecology of reproductive and feeding behaviour of the deep-sea asteroid, Dytaster insignis.
- Kier- Distribution of regular and irregular echinoids through geologic time with emphasis on the poor fossil record of regular echinoids; index of the fossil and living species of echinoids described since 1924, and the bringing up-to-date of Lambert and Thiery (with Mary H. Lawson); some new Ordovician echinoids from U.S.
- Kobayashi- Marine Pollution bioassay by sea urchin eggs.
- Lucas- Biology of Acanthaster, including larvae, saponins, isoenzymes, hybrids, growth and reproduction.
- McConnaughey- Analysis of fielding sampling data to bring out biotic communities and associations.
- MacFarland- Designing administration and management plan for marine park in Galapagos Islands.
- Mackie, A.M.- Experiments on sea-stars terminated for the moment.
- Macnab, J.A.- Distribution of Dendraster excentricus on the Pacific coast of North America.
- Marsh- Taxonomy and zoogeography of Western Australian Asteroids; Asteroids of Palau (Caroline Ids.).
- Menge, B.- Analysis of community structure and stability in temperate (New England, Pacific Northwest), and tropical Panama rocky intertidal regions.
- Messing- Recent crinoid communities in the Straits of Florida; revisions of Atlantic species and genera of comatulids (e.g., Pentametrocrinus, Atelecrinus, Caryometra, Trichometra); tanaid crustaceans.
- Millendorf- Ontogeny, functional morphology, and redescription of the Middle Devonian blastoid Eleutherocrinus.

- Mitrovic- Problems of echinoderm terminology and nomenclature.
- Moreno- Echinoderms of Macronesia.
- Morrill- Morphogenetic and biochemical effects of glucosamine analogs on the development of Lytechinus; echinoid gametes, embryos and larvae as bioassay systems for pollutants and development of water quality indices.
- Paine- Role of asteroids and echinoids in structuring intertidal communities.
- Patent- Electron microscopy of ophiuroid gonads; relationship of Gersemia to Gorgonocephalus.
- Paul, C.- Computer simulation of respiration and feeding in Paleozoic echinoderms, British Ordovician cystoids, Scandanavian Ordovician echinoderms; evolution of Sphaeronites.
- Pawson- Revision of the Holothurian family Myriotrochidae.
- Pentreath- Morphology of echinoderm nervous systems.
- Phelan- The numerical increase of lateral water vessels and accessory tube feet with plate growth in Dendraster excentricus.
- Philip, G.- Southeast Australian Tertiary echinoids.
- Precious- Field and laboratory studies on newly metamorphosed juvenile Paracentrotus lividus (Lamarck) with special reference to settlement requirements and subsequent growth rates.
- Prokop- The family Hexacrinitidae/ Wachsmuth and Springer, 1881/, Bassler 1938 from the Silurian and Devonian of Bohemia/ Crinoidea.
- Rasmussen- Mesozoic and Cainozoic crinoids.
- Roux- Crinoids, ontogeny and evolution of peduncles of the fossil and recent Articulata; microstructure of the articulations of the peduncles.
- Rutherford- Population biology of tropical holothurians.
- Rutman- Reproduction of Red Sea Crinoids.
- Sato- Immuno-fluorescence, Anti-tubulin staining of mitotic spindle; fine structure analysis of mitotic spindle in living, dividing cells.
- Scally- Structure and function of regular echinoid teeth.
- Seibertz- Biometrical investigations in fossil echinoids (Echinocorys, Turonian); paleobiogeography, distribution and migration of Micraster in Northwest Europe.

- Serafy- Echinoderms of middle Atlantic outer continental shelf (New Jersey to Virginia); animal sediment relationships.
- Sibuet- Monograph of the asteroids of the Atlantic (with A.M. Clark and M. Downey); vertical distribution of Atlantic abyssal asteroids; a study of the intestinal contents of certain abyssal holothurians.
- Siegel- Ecology and reproductive biology of Chiridota laevis; ecology and behavior of northern New England holothurians.
- Smith, A.B.- Microstructure of the echinoid test; functional morphology of recent and fossil echinoid tubercles and pore pairs; palaeoecology of the echinoid fauna of the Cotswolds, England.
- Speel- Intertidal distribution of brachiopods and priapulids in Maine; statistical analysis morphological variation in Antarctic crinoids.
- Sprinkle- Echinoderm faunas from the Bromide Formation (Middle Ordovician) of Oklahoma (with 8 other authors); Late Cambrian echinoderms from S.E. Missouri (with Strimple); new Middle Cambrian edriasteroid from Nevada (with Bell); Early Pennsylvanian blastoids from Oklahoma and Arkansas (with Katz).
- Strathmann- Adaptive aspects of complex life cycles and variations in egg size; hybridization and interspecific competition in the echinoids Strongylocentrotus droebachiensis and S. pallidus; limitations of ciliary feeding mechanisms in larvae.
- Sutton- Systematics of Amphiuridae (Ophiuroidea) from west coast of North America; population biology of Amphiodia urtica; reproductive biology of Amphiodia occidentalis; ophiuroid-mollusc and ophiuroid-crustacean symbiotic and parasitic relationships; re-organization of California Academy of Sciences ophiuroid collection; development of comprehensive reference collection, bibliography, repository, and identification manuals for San Francisco Bay-Delta System and environs.
- Takahashi- Physiology of echinoderm muscles and connective tissue; motility of echinoderm spermatozoa.
- Termier- Skeleton texture of some Echinodermata.
- Thandar- The holothurian fauna of South Africa (excluding shallow water species from Natal).
- Tommasi- Ophiuroids from Antarctica and subantarctic regions of the family Ophiuroidea (USARP); ophiuroids from southwest Atlantic region of the family Amphiuridae (with Maria Natividade de Albuquerque); echinoderms from polluted estuarine regions of São Paulo coast (with Tânia Maria Camargo de Moraes).
- Tortonese- Revision of Holothuroidea in the Italian fauna; the genus Echinaster (with M. Downey).

Wagner, C.- Evolution and distribution of North Pacific recent and fossil Clypeasteroid echinoids.

Walker, C.- Gametogenesis and ultrastructure of the spermatogenic columns in Asterias vulgaris.

Weber- Physiology and ultrastructure of light-sensitive pigment cells in Centrostephanus longispinus; ultrastructure of the nervous system in Centrostephanus longispinus.

Wolfe, T.J.- Growth and feeding behavior of the basketstar, Astrophyton muricatum; literature review of the Gorgonocephalidae.

Word- Taxonomic standardization Program for the Southern California area; Ophiuroidea systematics and ecology.

Wright, M.B.- Taxonomy and ecology of Eastern Pacific holothurians.

ALSO:

Broadhead - Systematics and evolution of the Dichocrininae; mechanics of the anisotropic crinoid column, Platyplateium (with Strimple).

Lewis - Depositional environments and paleoecology of the Oil Creek Formation (Ordovician) of Oklahoma.

Strimple - Regeneration in Pennsylvanian crinoids (with Lewis); Gasperian crinoids of Virginia and Tennessee (with Coney); Pennsylvanian-Permian crinoids of Utah (with Miller); eleutherozoic Paragassizocrinus (with Ettensohn).

Witzke - Echinoderms of the Hopkinton Dolomite (Late Llandoveryan).

Recent Publications and Papers in Press

This list is based upon Newsletter replies plus reprints received. Please note that many of the papers listed below as "in press" will already have been published.

Arnaud, P.M., 1975. Bottom life under Antarctic ice shelves. *Nature*, 256 (5517) : 521.

_____, in press. Adaptations within the Antarctic benthic ecosystem. Third Symposium on Antarctic Biology, Washington.

_____ and F. Arnaud, A. Intes, and P. Le Loeuff, in press. Transport d'invertébrés benthiques entre l'Afrique du Sud et Sainte Hélène par les Laminaires (Phaeophycées). *Bull. Mus. Hist. nat., Paris*, (Ser. Ecologie).

Ausich, W.I., in press. The functional morphology and evolution of Pisocrinus (Crinoidea: Silurian). *J. Paleont.*

Baker, A.N., 1975. Fishes: Marlins and Swordfish. *New Zealand's Nature Heritage*, Vol. 7, Part 96: 2686-2692.

_____ and H.E.S. Clark, 1975. Brittle Stars and Starfishes. *New Zealand's Nature Heritage*, Vol.5, Part 64: 1783-1789.

_____ and L.M. Marsh, 1976. The rediscovery of Halityle regularis Fisher (Echinodermata: Asteroidea). *Rec. West. Aust. Mus.*, 4 (2): 107-116.

_____ and J. Yaldwyn, 1976. Islands, Oceans and Marine Life Patterns. *Australian Natural History*, 18 (10): 376-380.

Bakus, G., in press. An Oceanographic and Marine Biological Study in the Gulf of Alaska. *Proc. Symp. Science, Resources and Technology in the Gulf of Alaska*. Arctic Instit. 62 pages. N. America - Mar. Sci. Instit., U. of Alaska.

_____, in press. Role of the Benthos in the Gulf of Alaska Ecosystem. 32 pages. *Proc. Symp. Science, Resources, and Technology in the Gulf of Alaska*. Arctic Instit.

Bell, B.M., H.L. Strimple and C.O. Leverson, 1976. Edrioasteroids (Echinodermata) of the Maquoketa Formation of Iowa. *Proc. Iowa Acad. Sci.* 83: 23-27.

_____, Morris S. Peterson, 1976. An Edrioasteroid from the Guilmette Formation at Wendover, Utah-Nevada. *J. Paleont.* 50(4): 577-589.

Bernasconi, I., in press. Ofiuroides del Mar Epicontinental Argentino (en colaboración con M.M. D'Agostino).

- Binyon, J., 1976. The Permeability of the asteroid podial wall to water and potassium ions. J. mar. biol. Ass. U.K. 56: 639-647.
- Breimer, A., in press. Chapters on 'General Morphology of Recent Crinoidea' and 'General Ecology and Paleoecology of Fossil Crinoidea', in: R.C. Moore and C. Teichert (Eds.), Treatise on Invertebrate Paleontology, Part T,
- Broadhead, T.W., 1976. Depositional systems and marine benthic communities in the Floyd Shale, Upper Mississippian, Northwest Georgia, in R.W. Scott and R.R. West (eds.) Structure and Classification of paleocommunities, Dowder, Hutchinson and Ross, p. 263-278.
- _____, in press. Systematics and distribution of the Callocystitidae (Echinodermata, Rhombifera). J. Paleont.
- _____ and H.L. Strimple, in press. Permian platycrinitid crinoids from Arctic North America. Canadian Jour. Earth Sci.
- Brower, J.C., and J. Veinus, 1975a. "Ontogeny of Hybocrinus punctatus (Miller and Gurley), and Ordovician crinoid". Journal of the International Association of Mathematical Geology 7 (2): 129-147.
- _____, 1975b. "Evolution of the Melocrinitidae", (Abstract), Geological Society of America, abstract vol. for northeastern section, p. 31.
- _____, 1975c. "Silurian crinoids from the Pentland Hills, Scotland". Palaeontology, vol. 18, pt. 3: 635-656.
- _____, 1976a. "Promelocrinus from the Wenlock at Dudley". Paleontology, vol. 19, 651-679.
- _____, in press. "Growth of camerate crinoids, a summary", Treatise on Invertebrate Paleontology, Pt. 1, Echinodermata 2 (Crinoidea), R.C. Moore (ed.), Geological Society of America and University of Kansas Press.
- _____, in press. Evolution of the Melocrinitidae. Proc. Vol. for Second Conference on Echinoderms, Thalassia Jugoslavica.
- _____, in press. Calceocrinids from the Bromide Formation (Ordovician) of Oklahoma. Circular, Oklahoma Geological Survey.
- Bouchet, P. and J. Lutzen, 1976. Pisolamia, nouveau genre de Gasteropode, parasite de l'holothurie abyssale Oneirophanta mutabilis. C. R. hebdomadaire Seances Acad. Sci., Paris, 282: 1013-1016.
- Campbell, A., 1976. Observations on the activity of echinoid pedicellaria III. Jaw responses of globiferous pedicellaria and their significance. Mar. Behav. Physiol. 4: 25-39.
- _____, 1976. Hamlyn Guide to the Seashore and Shallow seas of Britain and Europe. 320 pp. Paul Hamlyn; London.

- Campbell, A. and P.S. Rainbow, in press. The role of pedicellaria in preventing settlement on the sea urchin test.
- Carroll, E.J. and D. Epel, 1975. Elevation and hardening of the fertilization membrane in sea urchin eggs: Role of the soluble fertilization product. *Expt. Cell Res.* 90: 429.
- _____, and D. Epel, 1975. Isolation and biological activity of the proteases released by sea urchin eggs following fertilization. *Develop. Biol.* 44: 22.
- _____, 1976. Cortical granule proteases from sea urchin eggs. *Methods in Enzymology*.
- _____, R.C. Fahey, D. Epel, G.P. Maier, and S.D. Mikolajczyk, 1976. Changes in the glutathione thiol-disulfide status in sea urchin eggs and early embryos. *Biochem. Biophys. Acta.* 437: 445.
- _____, 1973. The block against polyspermy: Studies on the protease released by sea urchin eggs following fertilization. *J. Cell Biol.* 59: 47a.
- _____, 1973. Further studies on the protease released by sea urchin eggs following fertilization. *Amer. Zool.* 13: 1315.
- _____, 1974. Characterization and functions of sea urchin cortical granule proteases in fertilization. *J. Cell Biol.* 63: 51a.
- _____, 1974. On the mechanism of fertilization membrane elevation in the sea urchin. *Amer. Zool.* 14: 1251.
- _____, 1975. Nicotine induces polyspermy in sea urchin eggs by inhibiting the cortical granule protease. *Amer. Zool.* 15: 780.
- _____, J.D. Johnson, and H.W. Byrd Jr., 1975. A novel method for the complete removal of the vitelline layer of sea urchin eggs. *Amer. Zool.* 15: 780.
- _____, and H. Levitan, 1976. Fertilization of sea urchin eggs is blocked by fluorescein dyes. *J. Cell Biol.* 70: 96a.
- Caso, Maria E., 1974. Contribución al Estudio de los Equinoideos de México el Género Tripneustes Agassiz. *Morfología y Ecología de Tripneustes ventricosus (Lamarck)*. *An. Centro. Cienc. Del Mar y Limnol., Univ. Nal. Autón. México*, 1 (1): 1-24.
- _____, 1974. Contribución al Estudio de Los Equinoideos de México, *Morfología de Tripneustes depressus Agassiz y Estudio Comparativo entre T. ventricosus y T. depressus*. *An. Centro. Cienc. Del Mar y Limnol., Univ. Nal. Autón. Mexico*, 1 (10): 25-40.

- Cayer, M.L., T. Kishimoto, and H. Kanatani, 1975. Formation of the fertilization membrane by insemination of immature starfish oocytes pretreated with calcium-free seawater. *Development, Growth and Differentiation*. 17: 119-125.
- Cherbonnier, G., 1974. Redescription de l'Holothurie Aspidochirote Holothuria (Thymiosycia) truncata Lampert. *Bull. Mus. Natn. Hist. nat., Paris, 3^e Série*, no. 253, *Zoologie* 175: 1439-1443.
- _____, 1974. Présence de l'Holothurie Apode Opheodesoma spectabilis Fischer sur la côte Est de l'île de Zanzibar. *Bull. Mus. Natn. Hist. nat., Paris, 3^e Série*, no. 253, *Zoologie* 175; 1445-1447.
- _____, 1974. Invertébrés Marins Des XII^{ème} et XV^{ème} Expéditions Antarctiques Françaises en Terre Adélie. 15. Holothuries. *Tethys* 5 (4) 1973 (1974): 601-610.
- _____, 1975. Note sur la présence dans le Golfe de Guinée, de l'Holothurie Aspidochirote Stichopus Badionotus Selenka (= St. maculatus Greef). *Bull. Mus. Natn. Hist. nat., Paris, 3^e ser.*, no. 300, *Zoologie* 210; 631-638.
- _____, 1975. Sur la présence à Madagascar, de l'Asterie Mithrodia gigas Mortensen. *Bull. Mus. Natn. Hist. nat., Paris, 3^e ser.*, no. 300, *Zoologie* 210; 639-646.
- _____, and A. Guille, 1975. Echinodermes récoltés aux îles Kerguelen. *Bull. Mus. Natn. Hist. nat., Paris, 3^e Série*, no. 300, *Zoologie* 210; 603-630.
- _____, and A. Guille, 1976. Sur la présence, à l'île Heard, de l'Ophure Astrophuira permira Sladen. *Bull. Mus. Natn. Hist. nat., Paris, 3^e Série*, no. 351, *Zoologie* 244: 17-21.
- _____, and A. Guille, in press. Ophures de Madagascar.
- _____, in press. Notes on the systematics of holothurian families of the Triassic period in Spain.
- Chia, F.S., 1974. Classification and adaptive significance of Developmental patterns in marine invertebrates. *Thalassia Jugoslavica* 10 (1/2): 121-130.
- Clark, A.M., 1976. Review of Present Status of Knowledge of Pacific Echinoderms. *Micronesia* 12 (1): 193-195.
- _____, 1976. Tropical epizoic echinoderms and their distribution. *Micronesia* 12 (1): 111-117.
- _____, 1976. Asterozoa from Amsterdam and St. Paul Islands, southern Indian Ocean. *Bull. Br. Mus. (Nat. Hist.)*, *Zool.* 30 (6): 247-261.

- Clark, A.M., 1976. Notes on deep-water Atlantic Crinoidea. Bull. Br. Mus. (Nat.Hist.), Zool. 31(4).
- Clark, T., and H. Kanatani, 1975. Effect on some inhibitors of proteolytic enzymes on maturation of starfish oocytes. Biol. Bull. 149 (2): 423.
- Cochran, R.C., and H. Kanatani, 1975. Site of production of maturation-inducing substance in the starfish testis. Biol. Bull. 149 (2): 424.
- Codoceo, M.R., 1974. Equinodermos de la Isla de Pascua. Bol. Mus. Nac. Hist. Nat. Chile 33: 53-63.
- Dayton, P.K., R.J. Rosenthal, L.C. Mahen, and T. Antezana, in press. Population structure and foraging biology of the predaceous Chilean asteroid Meyenaster gelatinosus and the escape biology of its prey. Mar. Biol.
- Donnay, G., D.L. Pawson, and M. Hey, 1975. Biocrystallographic studies. Biomineralization, 8: 14-20.
- Ellington, W.R., 1976. L-Lactate dehydrogenase in the longitudinal muscle of the sea cucumber Sclerodactyla briareus. Mar. Biol. 36: 31-36.
- Ernst, G., W. Hähnel, and E. Seibertz, 1973. Aktnopalaäontologie und Merkmals variabilität bei mediterranen Echiniden und Rückschlüsse auf die Ökologie und Artumgrenzung fossiler Formen. Paläont. Z., 47 (3/4): 188-216.
- _____, and E. Seibertz, in press. Results of actnopalaäontological researches on Mediterranean echinoids and their application on fossil forms. Thalassia Jugoslavica.
- Ferber, I., 1972. Intertidal occurrence of the heart-urchin Lovenia elongata (Echinodermata, Echinoidea). "Scientific Newsletter" No. 2 of the Heinz Steinitz Mar. Biol. Lab. at Elat (The Hebrew University of Jerusalem): 10-11.
- _____, 1976. Distribution, Substratum Preference and Burrowing Behavior of Lovenia elongata (Gray) (Echinoidea; Spatangoida) in the Gulf of Elat (Aqaba), Red Sea. J. Exp. Mar. Biol. Ecol. Vol. 22: 207-225.
- Frest, T.J., and H.L. Strimple, 1976. A new Ordovician Camerate Crinoid from Kentucky. Southeastern Geology Vol. 17, No. 3; 139-148.
- _____, and H.L. Strimple, in press. Three new camerates (Echinodermata: Crinoidea) from the Upper Silurian of Oklahoma and Tennessee. J. Paleo.

- Frest, T.J., and H.L. Strimple, in press. Hirneocrinidae, a new family of camerate crinoids. Jour. Paleo.
- _____, and _____, in press. Carpocrinus (Echinodermata: Crinoidea) from the Late Silurian of Somerset Island, northwest Territories. Canadian Jour. Earth Sciences.
- _____, and _____, in press. Evolutionary and paleoecologic significance of abnormal Platycystites cristatus Bassler (Echinodermata: Paracrinoidea). Jour. Wash. Acad. Sci.
- _____, and _____, in press. The taxonomic status of Poterocrinus (Scaphiocrinus) mcadamsi Meek and Worthen, 1873. Jour. Paleo.
- _____, and _____, in press. Praeopholidocidaris, a new echinoid from the Pella (Mississippian), of Iowa. Jour. Iowa Acad. Sci.
- _____, and _____, and M.R. McGinnis, in press. New Species of Platycystites (Echinodermata: Paracrinoidea) from the Middle Ordovician, of Oklahoma. Jour. Wash. Acad. Sci.
- _____, D.L. Mikulic, and C.R.C. Paul, in press. New information on the Holocystites fauna (Diploporita) of the Middle Silurian of Wisconsin, Illinois and Indiana. Fieldiana: Geology.
- _____, in press. Cyathocrinites from the Silurian (Wenlock) strata of southeastern Indiana. Fieldiana: Geology.
- Gibbs, P.E., A.M. Clark, and C.M. Clark, 1976. Echinoderms from the northern region of the Great Barrier Reef, Australia. Bull. Br. Mus. (Nat. Hist.) Zool. 30(4): 101-144.
- Gooding, R.U., and J. Lutzen, 1973. Studies on parasitic gastropods from Echinoderms. III. A description of Robillardia cernica Smith 1889, parasitic in the sea urchin Echinometra meuschen, with notes on its biology. Det Kongelige Danske Videnskabernes Selskab Biologiske Skrifter 20, 4: 22 pages.
- Henderson, R.A., 1975. Cenozoic spatangoid echinoids from New Zealand. N.Z. Geol. Surv. Paleont. Bull.
- Hill, R.B., 1966. Propylene Phenoxetol as a "preservative" for living holothurians. Nature, Vol. 211, No. 5046: 304-305.
- _____, and D. Reinschmidt, 1976. Relative importance of the anti-oxidant and anesthetic properties of propylene phenoxetol in its action as a "preservative" for living holothurians. J. Inv. Pathol. 28: 131-135.
- Hiramoto, Y., 1975. Force exerted by the cleavage furrow of sea urchin eggs. Development, Growth and Differentiation 17: 27-38.

- Hiramoto, Y., H. Sakai, and R. Kuriyama, 1975. The glycerol-isolated mitotic apparatus: A response to porcine brain tubulin and induction of chromosome motion. *Development, Growth and Differentiation*. 17: 265-274.
- _____, and M. Saiki, 1975. Control of ciliary activity in *Paramecium* by intracellular injection of calcium buffers. *Cell Structure and Function*. 1: 33-41.
- Hotchkiss, F.H.C., in press. Devonian ophiuroids from New York State: Reclassification of Klasmura, Antiquaster and Stenaster into the suborder *Scalarina* nov., order *Stenurida*. *New York State Museum Bull.* no. 425.
- _____, in press. Ophiuroid Ophiocanops (Echinodermata) not a living fossil. *J. Nat. Hist.*
- _____, and P.R. Seegers, in press. Variable symmetry in starfish. *Thalassia Jugoslavica*.
- _____, and A.M. Clark, 1976. Restriction of the Family Poraniidae, sensu Spencer and Wright, 1966. *Bull. Br. Mus. (Nat. Hist.) Zool.* 30(6): 263-268.
- Howden, M.E.H., 1975. Chemical defenses of Acanthaster planci. (with J.S. Lucas, M. McDuff, and R. Salanthe). *Aust. Gov't. Publ. Serv, Canberra*: 67-79.
- Ikegami, S., H. Kanatani, and S.S. Koide, 1976. Gamete-release by 1-methyladenine in vitro in the sea cucumber, Leptosynapta inhaerens. *Biol. Bull.* 150: 402-410.
- Iwata, K.S., 1976. Gonadal shedding pressure in the sea urchin. *Zool. Mag. (Tokyo)*, 85: 270-272.
- Jacob-Judah, S., 1975. Commensal Taeniacanthid Copepods from the Sea Urchin Diadema setosum at Elat (Red Sea) with a description of two new species. *Israel J. of Zool.* 24: 1-15.
- Jefferies, R.P.S., in press. Calcichordates. Article in *Encyclopedia of Paleontology*. D. Jablonski (ed.), Reinhold Publ. Corp.
- Kanatani, H., 1975. Maturation-inducing substances in asteroid and echinoid oocytes. *Amer. Zool.* 15: 493-505.
- _____, 1976. Hormones in Echinodermata. In "Actualites sur les Hormones d'Invertebres." *Colloques Internationaux C.N.R.S.* No. 251: 177-189.
- _____, H. Shirai, and S. Taguchi, 1976. Methionine-activating enzyme in starfish follicle cells. *Development, Growth, and Differentiation*. 18: 15-21.

- Kardas, S.J., 1965. Sobre Echinocardium cordatum (Pennant): Biología y actuopaleontología. Bol. R. Soc. Española Hist. Nat. (Biol.) 63: 15-32.
- Katz, S.G., and J. Sprinkle, 1976. Fossilized eggs in a Pennsylvanian blastoid. Science, 192 (4244): 1137-1139.
- Kier, P., in press. Triassic Echinoids- A review of all the Triassic echinoids and description of the Late Triassic echinoids of the St. Cassian Beds.
- Kishimoto, T., M.L. Cayer, And H. Kanatani, 1976. Starfish oocyte maturation and reduction of disulfide-bond on oocyte surface. Expte. Cell Res. 101: 104-110.
- _____, and H. Kanatani, 1976. Cytoplasmic factor responsible for germinal vesicle breakdown and meiotic maturation in starfish oocyte. Nature, 260: 321-322.
- Kobayashi, N., 1976. Bioassay data for marine pollution using sea urchin eggs. 1974. Publ. Seto Mar. Biol. Lab. 22: 405-407.
- _____, 1976. Synergism of inhibiting actions of heavy metals upon the fertilization and development of sea urchin eggs. Sci. Eng. Rev. Doshisha Univ. 17: 54-69.
- _____, 1976. Preliminary observation on the maturation of the burrowing sea urchin Echinostrephus aciculatus (A. Agassiz) in the vicinity of Seto. Publ. Seto Mar. Biol. Lab. 23.
- _____, 1976. Bioassay data for marine pollution using sea urchin eggs, 1975. Ibid. 23: in press.
- Koide, S., S. Ikegami, and H. Kanatani, 1975. Gamete release from isolated sea cucumber gonads by 1-methyladenine. Biol. Bull. 149 (2): 433-434.
- Kolata, D.B., H.L. Strimple, and C.O. Levorson, in press. Revision of the solutan carpoid family Iowacystidae. Paleontology.
- Kubota, J. and H. Kanatani, 1975. Production of 1-methyladenine induced by concanavalin A in starfish follicle cells. Development, Growth and Differentiation. 17: 177-185.
- Lapham, K.E., and W.I. Ausich, and N.G. Lane, 1976. A Technique for developing the stereom of fossil crinoid ossicles. J. Paleont. 50 (2): 245-248.
- Lawrence, J., 1976. Covering response in sea urchins. Nature, Vol. 262, No. 5568; 490-491.
- Leclerc, M., 1977. Asterina gibbosa: L'oeuf la larvae et la métamorphose d'une Etoile de Mer (film scientifique).

- Leclerc, M., 1976. Heterotransplantation of invertebrates organs to congenitally athymic (nude) mice. Transplantation 19: 74-76
- _____, 1976. Specific reactions induced in vertebrates by invertebrate cell suspension. In press.
- Longman, M.W., and J. Sprinkle, 1976. Facies and Communities of an Ordovician Aulacogen. Deposits: The Bromide Formation of southern Oklahoma. Abstract of talk presented at Symposium on "Ordovician Stratigraphy and Environments in North America" at the Geol. Soc. of Amer. Ann. Meeting, Denver, Colorado on Nov. 10, 1976.
- Lucas, J.S., 1975. Environmental influences on the early development of Acanthaster planci (L.). pp. 109-121 in Crown-of-Thorns Starfish Seminar Proceedings, Brisbane, Sept. 1974. Aust. Gov't Publ. Serv., Canberra: 191 pp.
- _____, and M.M. Jones, 1976. Hybrid Crown-of-Thorns Starfish (Acanthaster planci X A. brevispinus) reared to maturity in the laboratory. Nature, 263 (5576): 409-412.
- Lutzen, J., and K. Nielsen, 1975. Contributions to the Anatomy and Biology of Echineulima n.g. (Prosobranchia: Eulimidae), parasitic on sea urchins. Vidensk. Meddr. dansk. naturh. Foren. 138: 171-199.
- _____, 1976. On a new genus and two new species of Prosobranchia, Mollusca, parasitic on the tropical sea urchin Echinometra mathaei. Israel J. Zool. 25, no. 1. (in press).
- Lynn, D.H., 1976. Comparative ultrastructure and systematics of the Colpoda. Structural conservatism hypothesis and a description of Colpoda steinii Maupas. J. Protozool. 23 (2): 302-314.
- McConnaughey, B.H., in press. Introduction to Marine Biology. C.V. Mosby Co., 3rd edition.
- McKnight, D.G., 1975. Classification of Somasteroids and Asteroids (Asterozoa: Echinodermata). J. Roy. Soc. N.Z., Vol. 5, No. 1: 13-19.
- Macurda, D.B., 1976. Distribution of shallow water crinoids near Santa Marta, Colombia (with D.L. Meyer): Mitt. Instit. Colombo-Aleman de Invest. Cient. "Punta de Betin." In, press.
- _____, 1976. The identification and interpretation of stalked crinoids (Echinodermata) from deep-water photographs (with D.L. Meyer): Bull. Mar. Sci., Vol. 26: 205-215.
- _____, 1976. The morphology and life habits of the abyssal crinoid Bathycrinus aldrichianus Wyville Thomson and its paleontological implications (with D.L. Meyer): J. Paleont. Vol. 50: 647-667.

- Macurda, D.B., 1976-1977. The crinoids of the west Indian coral reefs (with D.L. Meyer): AM. Assoc. Petrol. Geol., Spec. Paper. in press.
- _____, D.L. Meyer, and M. Roux, 1976-1977. The crinoid stereom. in R.C. Moore (ed.), Treatise on Invertebrate Paleontology. Part T., Echinodermata 2. In press.
- _____, _____, and C. Messing, 1976-1977. Zoogeography and bathymetric distribution of tropical western Atlantic Crinoidea (Echinodermata): Bull. Mar. Sci. In press.
- _____, 1976-1977. Two Carboniferous blastoids from Scotland: Manuscript submitted to Palaeon.
- _____, and A. Breimer, 1977. Strongyloblastus, a Mississippian blastoid from western Canada. Manuscript submitted to J. Paleont.
- _____, 1977. Arcuoblastus and Decemoblastus, two new Mississippian blastoid genera from the Burlington Limestone, Iowa. Manuscript submitted to J. Paleont.
- Mackie, A.M., H.T. Singh, J.M. Owen, 1976. Studies on the distribution biosynthesis and function of steroidal saponins in echinoderms. Comp. Biochem. Physiol. 56B: 9-14.
- Märkel, K., 1976. Das Wachstum der "Laterne des Aristoteles" und seine Anpassung an die Funktion der Laterne (Echinodermata: Echinoidea). Zoomorphologie 86, 25-40.
- _____, 1976. Struktur und Wachstum des Coronarskeletes, von Arbacia lixula Linné (Echinodermata: Echinoidea). Zoomorphologie 84; 279-299.
- Marsh, L.M., in press. Western Australian Asteroidea since H.L. Clark. Proc. 2nd Echinoderms Conference. Thalassia Jugoslavica.
- Mayo, P. and A.M. Mackie, 1976. Studies of avoidance reactions in several species of predatory British seastars. (Echinodermata: Asteroidea). Mar. Biol. 38: 41-49.
- Menge, B.A., and J.P.S. Sutherland, 1976. Species diversity gradients. Synthesis of the roles of predation, competition, and temporal heterogeneity. Amer. Nat. 110: 351-369.
- _____, 1976. Organization of the New England rocky intertidal community: role of predation, competition, and environmental heterogeneity. Ecol. Monogr. 46 (4). In press.

- Menge, B.A., 1976. Ecological implications of patterns of rocky intertidal community structure and behavior along an environmental gradient, in J.P. Costlow (ed.) "Ecology of Fouling Communities" U.S.-USSR Symposium, Duke Marine Lab, N.C., Nov. 1975, Navy Printing Office.
- Messing, C., in press. A revision of the comatulid genus Comactinia (A.H. Clark). Bull. Mar. Sci.
- Millott, N., 1975. The Photosensitivity of Echinoids. Adv. Mar. Biol. 13: 1-52.
- Pabian, R.K., and H.L. Strimple, 1976. Middle Devonian Crinoids from Western Maryland. Jour. Paleo. 50: 759-762.
- Paine, R.T., 1974. Intertidal community structure: experimental studies on the relationship between a dominant competitor and its principal predator. Oecologia 15: 93-120.
- _____, 1976. Size limited predation: an observational and experimental approach with the Mytilus - Pisaster interaction. Ecology 57 (5).
- Patent, D., in press. Gonadal histology of the basket star, Gorgonocephalus eucnemis. Thalassia.
- Paul, C.R.C., in press. Respiration rates in primitive fossil echinoderms. Proc. 2nd Echinoderms Conference.
- _____, in press. Primitive Echinoderms. in A. Hallam (ed.), Patterns of evolution as illustrated by the fossil record.
- Pawson, D.L., 1974. Echinodermata. 178-186 in Encyclopedia Britannica, 15th edition.
- _____, 1975. Iron phosphate deposits in molpadid holothurians. Biomineralization Research Reports 8: 16-20.
- _____, in press. Some aspects of the biology of deep-sea echinoderms. Thalassia 20Pages.
- _____, and F.W.E. Rowe, in press. Type specimens of echinoderms in the Australian Museum, Sydney. Records Australian Mus. 50 pp.
- _____, in press. The echinoderm fauna of Ascension Island. Smithsonian Contrib. to Mar. Science (100 pp.).
- _____, 1976. Echinodermata. In; Encyclopedia of beaches and coastal environments. T.C. Schwartz (ed.). 12pp. In press.
- _____, in press. Marine fauna of the northeastern United States. Echinodermata: Holothuroidea. NOAA Technical Reports.

- Pawson, D.L., 1976. Deep-sea Macroplanktonic Sea Cucumbers: Suspended Sediment Feeders Captured from Deep Submergence Vehicle. Science 194: 1083-1085. (with A. Barnes, L. Quentin and J. Childress).
- Phelan, T.F., in press. Comments on the Water Vascular System, Food Grooves, and Ancestry of the Clypeasteroid Echinoids. Bull. Mar. Sci. (July 1977) Vol. 27, no. 3.
- Philip, G.M., 1976. Gorystus dysasteroides, a Tertiary holasteroid, echinoid formerly known as Duncanaster australis. Trans. Roy. Soc. S. Australia 100(3): 113-116.
- Prokop, R., 1976. The genus Edriocrinus Hall, 1859 from the Devonian of Bohemia. /Crinoidea/: Cas. min. geol., 21, no. 2: 187-191.
- _____, in press. The family Ramacrinidae fam. n. / Crinoidea/ in the Devonian of Bohemia.
- Rasmussen, H.W., in press. Articulata. in R.C. Moore (ed.), Treatise on Invertebrate Paleontology, vol. T. Crinoidea.
- _____, in press. Function and attachment of the stem in Isocrinidae and Pentacrinidae: review and interpretation. Lethaia, vol. 10, no.1.
- Roman, J., and M. Perreau, 1975. La faune d'oursins de l'Auvergnien de Baron (Oise). Conditions de gisement et intérêt biogéographique. C.R. 100^e Congr. nat. Soc. savantes, I: 189-197.
- _____, 1976. Biogéographie d'un groupe d'Echinides cénozoïques (Echinolampas et ses sous-genres Conolampas et Hypsoclypus). 4^e Réunion annuelle des Sciences de la Terre, Paris, 356.
- _____, in press. Découverte du genre Brissopsis (Echinide, Spatangoidae) dans les faluns du Miocène moyen de Bretagne (Le Quiou, Côtes-du-Nord). C.R. 97^e Congr. Nat. Soc. savantes (Nantes 1972), II; 25-32.
- Roux, M., 1976. Découverte dans le Golfe de Gascogne de deux espèces actuelles du genre cénozoïque Conocrinus. C.R. Acad.Sci., Paris, Ser. D.
- _____, in press. The stem joint of recent Isocrinidae. Bull. Br. Mus. (Nat. Hist.), Zool.
- _____, in press. Les Bourgueticrinina recueillis par la "Thalassa" dans le Golfe de Gascogne: anatomie comparée des pedoncles et systematique. Bull. Mus. Natn. Hist. nat., Paris.
- _____, 1976. Paléontologie Animale. - Découverte dans le Golfe de Gascogne de deux espèces actuelles du genre cénozoïque Conocrinus (Echinodermes, Crinoides pedoncles). C.R. Acad. Sc. Paris, t. 283, Série D: 757-760.

- Rowe, F.W.E., 1976. The occurrence of the genus Heteronardoa Hayashi (Asteroidea: Ophidiasteridae) in the Indian Ocean, with the description of a new species. Rec. W. Aust. Mus. 4 (1): 85-100.
- _____, and D.L. Pawson, 1976. A catalogue of echinoderm type-specimens in The Australian Museum, Sydney. Rec. Aust. Mus. In press.
- _____, A new family of Asteroidea (Echinodermata), with the description of five new species and one new subspecies of Asterodiscides. Rec. Aust. Mus. In press.
- _____, in press. The status of Nardoa (Andora) A.M. Clark, 1967, (Asteroidea: Ophidiasteridae), with the description of two new subgenera and three new species. Rec. Aust. Mus.
- _____, 1976. Restriction of the chiridotid genus Trochodota Ludwig (1891) (Holothurioidae: Apodida), with the description of a new species from South Australia. Trans. R. Soc. S. Aust. Vol. 100, Pt. 4: 203-206.
- _____, in press. A new species of the synaptid genus Rynkatorpa, Rowe and Pawson 1967, (Holothurioidae; Apodida) from the Great Barrier Reef. Bull. Br. Mus. (Nat. Hist.), Zool.
- Saldanha, L., 1973. Présence de populations denses d'Ophiocomina nigra (O.F. Müller) sur la côte d'Arrábida (Portugal). Revista da Faculdade de Ciencias de Lisboa. 2ª Série, C, Vol. XVII, Fasc. 2: 427-436.
- Sastry, D.R.K., in press. On some new records of Echinoidea (Echinodermata) from Andaman and Nicobar Islands. Newsl. Zool. Surv. Ind. (short communication).
- _____, in press. On some crustacean associates of sea-urchins of Andaman and Nicobar Islands. Newsl. Zool. Surv. Ind. (short communication).
- _____, in press. A note on two species of Echinaster Mueller and Troschel (Echinodermata: Asteroidea) from Indian Ocean. Newsl. Zool. Surv. Ind. (short communication).
- Schumacher, H., 1974. On the conditions accompanying the first settlement of corals on artificial reefs with special reference to the influence of grazing sea urchins (Elat, Red Sea). Proc. 2nd International Coral Reef Symposium I, Great Barrier Reef Committee, Brisbane, October 1974: 257-267.
- Shick, J.M., 1976. Physiological and Behavioral Responses to Hypoxia and Hydrogen Sulfide in the Infaunal Asteroid Ctenodiscus crispatus. Mar. Biol. 37: 279-289.

- Sibuet, M., 1976. Cherbonniere utriculus gen. nov., sp. nov., petite Holothurie (Molpadonia, Molpadiidae) des vases abyssales du Nord-Est atlantique. C.R. Acad. Sc. Paris, t. 279.
- _____, 1976. Le genre Hymenaster (Astérides) dans l'océan Atlantique. Bull. Mus. Hist. nat. Paris, 3^e sér., no. 368, Zool. 256.
- _____, in press. Répartition et diversité des Echinodermes (Astérides et Holothurides) en zone profonde dans la Golfe de Gascogne. Deep Sea Research.
- _____, D. Colombero, and G. Venier, in press. Constance du nombre chromosomique chez les Echinodermes. Cahier de Biologie marine.
- Smaldon, G., D. Heppell, and K.R. Watt, 1976. Type specimens of Invertebrates (excluding Insects) held at the Royal Scottish Museum, Edinburgh. Nat. Hist. 4: 118 pages.
- Sprinkle, J., 1976. Classification and phylogeny of "Pelmatozoan" Echinoderms. Systematic Zoology 25 (1): 83-91.
- _____, 1976. Biostratigraphy and paleoecology of Cambrian Echinoderms from the Rocky Mountains. Brigham Young Univ., Geology Studies, 23 (2): 61-73.
- Stephenson, D.G., in press. On the origin of the five-fold symmetry of Echinoderms. Thalassica Jugoslavica.
- Strathmann, R.R., 1974. Introduction to function and adaptation in Echinoderm larvae. Thalassica Jugoslavica 10: 321-339.
- _____, and K. Vedder, in press. Size and organic content of eggs of echinoderms and other invertebrates related to developmental strategies and egg eating. Mar. Biol.
- Strimple, H.L., and A.S. Horowitz, 1975. A crinoid lentil in the Pennington Formation (Chesterian), Sloans Valley, Kentucky: Southeastern Geology, Vol. 17, no. 2; 81-83.
- _____, 1975. Introduction to a new series of studies of Ordovician echinoderms. Iowa Acad. Sci. 82: 124-125.
- _____, in press. Aphelecrinus (Crinoidea: Inadunata) from Chesterian rocks of Oklahoma. Okla. Geol. Notes.
- _____, in press. The inadunate crinoid genus Mooreocrinus. Okla. Geol. Notes.
- _____, in press. Two new species of Agassizocrinus from Alabama. Southeastern Geology.

Strimple, H.L., in press. Unusual morphological features in the blastoid genus Pentremites. Geology Magazine.

_____, in press. Flexible crinoids from the Pitkin Formation. Okla. Geol. Notes.

_____, in press. A very young Stenopacrinus ornatus (Crinoidea: Inadunata) from Lower Pennsylvanian (Morrowan) rocks of Oklahoma. Jour. Paleo.

_____, in press. The inadunate crinoid genus Cryphiocrinus Kirk. Geology Magazine.

_____, in press. Lower and Middle Pennsylvanian crinoids from the Sangre de Cristo and Sacramento Mountains of New Mexico. New Mexico Bureau of Mines.

_____, and P.H. Heckel, in press. A significant acrocrinid (Crinoidea: Camerata) from the Ladore Shale (Missourian) of Eastern Kansas. Kansas Geol. Survey.

_____, and R.H. Mapes, in press. A new Upper Pennsylvanian fisticulate blastoid from Texas. Jour. Paleo.

Sutton, J.E., in press. Partial revision of the genus Amphiodia Verrill (Ophiuroidea: Amphiuridae) from the west coast of North America. Thalassia Jugoslavica.

Termier, G., 1974. Une méthode nouvelle: l'utilisation de fragments d'Echinodermes contenus dans les sédiments dévoniens et carbonifères du Maroc. N. Serv. Géol. Maroc 35 (255): 27-53.

_____, 1974. Une texture de Conocardiidé dans l'Emsien de la Montagne Noire. (En coll. av. D. Vachard). Ann. Soc. Géol. Nord, XCIV: 87-92.

_____, 1974. Distribution des faunes marines dans le Sud de la Téthys et sur la bordure septentrionale du Gondwana au cours du Paléozoïque supérieur. Ann. Soc. Géol. Belgique 97: 387-446.

_____, 1975. Sedimentary behaviour and skeletal textures available in growth cycle analysis. NATO Symp. On Growth Rhythms, Newcastle: 89-102.

Thandar, A.S., in press. Investigations into the Holothurians of the Natal Coast. I. Descriptions of two new species. Ann. Natal Mus.

Tommasi, L.R., and Carrera Rodrigues, C.J., 1972. Asteroidea de la plataforma continental do Rio Grand do Sul (Brasil). Coleccionados durante las viajes del N. Oc. "Prof. W. Besnard" para el proyecto Rio Grande do Sul. Bol. Inst. Ocean. USP.

Tortonese, E., in press. Report on echinoderms from the Gulf of Agaba (Red Sea). *Monitore Zoologico Italiano*.

Turner, R.L., and J.D. Murdoch, 1976. Potential of arms as a nutrient source for disc regeneration in a brittlestar. *Amer. Zool.* 16: 228.

_____, and J.C. Rutherford, in press. Organic, inorganic and caloric composition of eggs, pentaculae, and adults of the brooding sea cucumber Cucumaria curata Cowles (Echinodermata: Holothuroidea). *J. Exp. Mar. Biol. Ecol.*

Voogt, P.A., and J.W.A. Van Rheenen, 1976. On the fate of dietary sterols in the sea star Asterias rubens. *Comp. Biochem. Physiol.* 54B: 473-477.

_____, and _____, 1976. On the origin of the sterols in the sea star Asterias rubens. *Comp. Biochem. Physiol.* 54B:479-482.

Wagner, C.D., 1971. Evolution of the North Pacific sand dollar echinoid fauna. Abstracts, Geol. Soc. Amer., (Cordilleran Section Meetings) Vol. 3, No. 2; 213-214.

_____, 1972. A new Paleocene Phymosomatid Echinoid from Baja, California. *Jour. Paleont.* Vol. 46, No. 5: 651-655.

_____, 1974. Fossil and recent sand dollar echinoids of Alaska. *Jour. Paleont.* Vol. 48, No. 1: 105-123.

Walker, C.W., 1977. A comparative histology and ultrastructure of the gonads in the sea-stars, Ctenodiscus crispatus and Hippasteria phrygiana.

Warn, J.R., and H.L. Strimple, in press. The disparid inadunate superfamilies Homocrinacea and Cincinnaticrinacea (Echinodermata: Crinoidea) Ordovician-Silurian, North America. *Bull. Amer. Paleol.*

Weber, W., and M. Grosmann, in press. Ultrastructure of the basiepithelial nerve plexus in Centrostephanus. *I. Cell and Tissue Research.*

_____, and M. Dambach, in press. Light sensitive pigment cells of the sea urchin Centrostephanus longispinus. *Pigment Cell*, S. Karger, Basel, New York.

Witzke, B., T.J. Frest, and H.L. Strimple, in press. Boucot Colloquium, Biogeography of Silurian-Lower Devonian echinoderms.

Word, J.Q., 1976. Volume II. Keys to the Invertebrates of Southern California Coastal Waters. *Natantia*.

_____, in press. Volume III. Invertebrates of Southern California Coastal Waters. *Ophiuroidea*.

Word, J.Q., 1975. A field comparison of seven benthic sampling devices;
EPA Task Report.

Yamaguchi, M., in press. Estimating the length of the exponential growth
phase: Growth increment observations on the coral reef
asteroid Culcita novaeguineae. Mar. Biol.

_____, in press. Population structure, spawning, and growth of the
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Science.

_____, in press. Larval development and geographical distribution
of coral reef asteroids. Micronesica.

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